

CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

In the Claims:

1. (Original) A method, comprising:
partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID.
2. (Original) The method as claimed in claim 1, further comprising
allocating the one or more special-purpose entries based on the particular stream ID and a particular input address.
3. (Original) The method as claimed in claim 2, further comprising
storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and
storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.
4. (Original) The method as claimed in claim 3, further comprising
determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and
using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.
5. (Original) The method as claimed in claim 4, further comprising determining
if a cross-access scenario exists.
6. (Original) The method as claimed in claim 5, wherein the one or more streams are special-purpose streams including graphics streams.

7. (Original) A device comprising:
a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID.

8. (Original) The device as claimed in claim 7 further comprising:
control logic to allocate the one or more special-purpose entries based on the particular stream ID and a particular input address.

9. (Original) The device as claimed in claim 8, wherein the control logic further comprises:

special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and
general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

10. (Original) The device as claimed in claim 9, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address; and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

11. (Original) The device of claim 10, further comprising a DRAM controller integrated with the cache memory array.

12. (Original) The device of claim 11, further comprising an integrated graphics controller, a host AGP controller, and an I/O hub interface coupled to the DRAM controller.

13. (Original) A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions when executed by a computer, cause the computer to perform the method comprising:

partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID.

14. (Original) The computer-readable medium of claim 13 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of allocating the one or more special-purpose entries based on the particular stream ID and a particular input address.

15. (Original) The computer-readable medium of claim 14 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of

storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and

storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and predetermined input address.

16. (Original) The computer-readable medium of claim 15 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of

determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and

using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.

17. (Original) The computer-readable medium of claim 16 having stored thereon additional instructions, the additional instructions when executed by a computer, cause the computer to further perform the method of determining if a cross-access scenario exists.

18. (Original) The computer-readable medium of claim 17, wherein the one or more streams are special-purpose streams including graphics streams.

19. (Original) A system, comprising:
means for partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID.

20. (Original) The system as claimed in claim 19, further comprising
means for allocating the one or more special-purpose entries based on the particular stream ID and a particular input address.

21. (Original) The system as claimed in claim 20, further comprising
means for storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and
means for storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and predetermined input address.

22. (Original) The system as claimed in claim 21, further comprising
means for determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and
means for using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries.

23. (Original) The system as claimed in claim 22, further comprising means for determining if a cross-access scenario exists.

24. (Original) The system as claimed in claim 23, wherein the one or more streams are special-purpose streams including graphics streams.

25. (New) A system, comprising:
a system memory controller, comprising
a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, and
control logic coupled to the cache memory array; and
system memory connected to the system memory controller.

26. (New) The system as claimed in claim 25, further comprising
one or more interfaces connected to the system memory controller, including
an I/O hub interface connected to a bus,
a processor interface; and
a host AGP controller connected to the system memory controller via the bus;
wherein the cache array receives the cache operation requesting data via the one or more interfaces, and returns a cache hit in response to the cache operation, wherein the cache has a pending fetch for the data in response to a prior cache operation requesting the data.

27. (New) The system as claimed in claim 26, wherein the processor interface connects to a processor of a plurality of processors, the plurality of processors including a 16 bit processor and a 64 bit processor.

28. (New) The system as claimed in claim 25, wherein the control logic further comprises:

special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and
general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

29. (New) The system as claimed in claim 28, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address; and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

30. (New) A device, comprising:
a hub interface to use with a 64-bit processing architecture;
a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries; and
control logic to allocate the one or more special-purpose entries based on a particular stream ID and a particular input address.

31. (New) The device as claimed in claim 30, wherein the control logic further comprises:
special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and
general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address.

32. (New) The device as claimed in claim 31, wherein the special-purpose control logic determines when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address; and the general-purpose control logic implements a cache replacement algorithm for the one or more general-purpose entries.

33. (New) The device of claim 32, further comprising a DRAM controller integrated with the cache memory array.

34. (New) The device of claim 32, further comprising an integrated graphics controller, and a host AGP controller.